

Misconceptions about a Curriculum-as-Inquiry Framework

Looking at actual teaching practices provides a frame for critiquing common misconceptions about an inquiry-based curriculum.

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In *The Wise Woman and Her Secret*, Eve Merriam (1991) urges her audience: “The secret of wisdom is to be curious—to take the time to look closely, to use all of your senses to see and touch and taste and smell and hear. To keep on wandering and wondering. Merriam encourages us to explore our world through multiple senses, a message echoed by educational theorists. Dewey (1938) contends children need to interact with the world and see the relationship between their concrete experi-

ences and abstract thought. Curriculum needs to be purposeful in children’s lives, starting from children’s own experiences through which they find relationships among realities in the world around them, past and present. The inquiry cycle (Harste & Short, with Burke, 1988) provides a curricular framework that puts the learner at the center of the curriculum and establishes a seamless and ongoing connection between learning and inquiry (Short & Burke, 1991). Short and Harste,

with Burke (1996), argue that an inquiry-based curriculum is built from learners’ interests and must be personally and socially significant to spur lifelong curiosities—lifelong wandering and wondering.

While embraced by some advocates, inquiry as a classroom practice has also been received critically. Such criticism is healthy since it invites dialogue that may eventually lead to new curricular potentials in inquiry learning. These criticisms originate when inquiry as a chosen *practice* is implemented or perceived without being based in crucial theoretical beliefs. This article is an attempt to strengthen the connection between theory and practice in the inquiry discussion.

To do this, we present three curricular perspectives prevalent today and situate inquiry curriculum among these perspectives. Then we address several critiques of inquiry curriculum. By providing scenarios and identifying the beliefs underlying these opposing perspectives, we attempt to articulate the connection between practice and theory. We position the critical questions regarding inquiry as a curricular practice in synergy with—rather than in opposition to—the goal of promoting genuine inquiry in classrooms.

CONTRASTING CURRICULAR PERSPECTIVES

It is not enough to employ the surface features or instructional tools that give the appearance of an inquiry classroom. A curriculum-as-inquiry framework must also be present for inquiry practice to interweave with theory. Thus, to understand the paradigmatic differences that drive pedagogy, we present these differences around three contrasting curricular perspectives *Outside-Curriculum-Makers*, *Teacher-as-Curriculum-Maker*, and *Learner-as-Curriculum-Maker*.

Outside-Curriculum-Makers include textbook publishers, curriculum developers, politicians, and policy-makers who believe education can be packaged into textbook series or commercial kits and transmitted to students, who *receive knowledge*. In the *Teacher-as-Curriculum-Maker* perspective, the teacher negotiates the mandated curriculum imposed by *Outside-Curriculum-Makers* but *takes into consideration* the class's general interests and experiences before planning instruction. The teacher operating from a *Learner-as-Curriculum-Maker* perspective encourages each learner to take an active role in determining questions for inquiry exploration, so the curriculum revolves around the learner. This curricular perspective supports the curriculum-as-inquiry model proposed by Short and Harste with Burke (1996).

These curricular perspectives provide a framework for addressing critiques of inquiry curricula. The criticisms, which we encountered through our work with teachers in schools or at professional conferences (Roberson & Pataray-Ching, 1997, 1998; Pataray-Ching, 1997, 2000), arose from either the *Outside-Curriculum-Maker* or *Teacher-as-Curriculum-Maker* perspectives. To clarify the

underlying beliefs of an inquiry curriculum, we address these critiques of a *Learner-as-Curriculum-Maker* perspective through theory and data from qualitative studies. Through integrating theory and actual classroom research, we hope to close the perceived distance between theories of inquiry and actual teaching practice.

Misconception 1: Inquiry is too complex for young learners

Joan Youngquist's childcare program includes children from ages 2½ to 5 years old. They are interested in learning more about germs after playing "doctor" and wondering why people get sick. They make preliminary drawings of what they think germs might look like and pose questions: "How do you catch a cough?" "How do you catch ear infections?" "What happens to germs when they get washed down the sink?" One of the children's parents is a doctor, so they visit the doctor's office, where they check each other's blood pressures, listen to each other's hearts through a stethoscope, and ask the doctor their questions about germs. When they return to their childcare center, which is actually the lower level of Joan's home, the children survey their area to check where the most germs exist. They count the number of fungi on each slide taken from swab samples from various places around the facility and find that the toilet has the least amount of germs, but Joan's adolescent son's room has the most. Together they write a story about germs that includes themselves as characters. Since their visit to the doctor's office, some of them have been talking about setting up their own workspace as a doctor's office. Their inquiries on germs, a microscopic entity that they can't even see, continue to spark more questions and further exploration.

Research shows that children as young as infants and toddlers actively inquire throughout their daily lives and are indeed able to understand complex thought, even prior to school (Weaver, 1990; Edwards, Gandini, & Forman, 1998; Harste, Woodward, & Burke, 1984). Reggio Emilia's early childhood program in Italy documented the countless ways in which young children explore their worlds through "a hundred languages, a hundred thoughts, a hundred ways of thinking, of playing, of speaking" (Edwards, Gandini, & Forman, 1998, p. 3).

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Learning is not based on age or biological stage, but on the child's experience with and exposure to language, literacy, art, and other sign systems (Harste, Woodward & Burke, 1984; Cole, John-Steiner, Scribner, & Souberman, 1978).

While the four- and five-year-olds in Joan Youngquist's child care program may not be able to read and record information, they can turn to others for help in performing these tasks. They can also utilize other sign systems, such as art, music, or drama, as vehicles for making and sharing meaning. Thus, although young children may need assistance in performing the communicative tasks to articulate their thought processes, they can wonder and explore.

Misconception 2: Inquiry is just a fancy name for doing research

As an introductory activity for Jann Pataray-Ching's class on inquiry

and multiple ways of knowing, graduate students reflect on how they inquire as adults. Carolyn Haar shares her interests in butterflies. Her inquiry began when she discovered a chrysalis in her backyard. She watched the butterfly emerge and saw its metamorphosis as a metaphor for her own life. Intrigued, she read about butterflies, studied their habitats, and then transformed her entire backyard into a butterfly garden where dozens of caterpillars spin their chrysalises each year, so they may develop their wings and fly away.

Kris Vodehnal enjoys working with her hands. She read about and studied several mediums to create art. She decided to work with soldering wire. She starts by bending the wire to form abstract or familiar shapes and then adds small glassware and wire mesh to make her design more aesthetically pleasing. She shows her artwork to selected storeowners in her local community who agree to sell some of her pieces.

Mark Danley has become interested in learning more about beer. Initially, he looked through pamphlets that explain where the various beers come from. Then a friend found a recipe for making beer, so they experimented making their own brews. Their first experiment exploded, leaving a stain on Mark's ceiling. But they continued to experiment with different types of recipes, making light and dark beers, searching for the best flavors, and recording in their journals those recipes that work and those that are disasters.

Traditionally, research consists of assigning students a topic and instructing them to find out about it through encyclopedias and other reference books. This traditional view of student research defines inquiry as questioning and searching for "answers. However, the in-

quiries of Carolyn, Kris, and Mark show that inquiries involve a series of experiences that extend beyond the simple search for answers in a textbook or encyclopedia, making the traditional view of student research a subset of, rather than another name for, inquiry.

A goal of inquiry classrooms, then, is to help learners move beyond perceiving inquiry as looking up information in textbooks and encyclopedias and to adopt a philosophical stance of viewing learning. From this philosophical perspective,

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learners explore their world through an inquiry lens, making changes and adjustments in their thinking, experimenting with tools in their environment, inventing new tools, and venturing further into their inquiries.

Misconception 3: The duration of inquiry studies should be no more than two weeks

Jess, Arthur, and Jarvis find a cocoon nestled in the bushes at the periphery of the school grounds (Ching, 1996). They take it into the classroom and place it in the fish tank. Jess reaches into the aquarium, lifts the beige peanut-sized cocoon, and places it into his outstretched palm. The cocoon wiggles from side to side, and the scratching sounds from within make the cocoon vibrate, tickling Jess's skin. Raising the cocoon to his ear, Jarvis listens while Arthur points to the dent on the cocoon's underside. They stare with curious eyes, holding the

cocoon an inch above their heads to study the strange indentation.

This is the beginning of their inquiries. In the coming weeks they explore their inquiries in greater depth by placing the cocoon onto intensified light to make the cocoon "hatch" faster. They also imagine what it might feel like being in a cocoon. Arthur and Jarvis study the differences between cocoons spun by various insects. Their inquiries take another turn when the creature emerges from the cocoon, giving the children new questions to ponder.

In the past, when teachers implemented thematic units, there was usually a defined beginning and ending to each unit. Teachers controlled time by moving the entire class through the curriculum. However, when individuals need more time to study a topic or question, the thematic unit's structure no longer supports the learner.

Providing children time for inquiry exploration is vital. Eco (1985) asserts that each of us constantly makes webs of connections between seemingly disconnected events that occurred across time. These interconnections are part of our global semantic system; they are not necessarily linear or apparent but are linked in the individual's mind. Inquiry teachers are sensitive to students' abilities to focus on one study for an extended length of time because they know that prolonged thought of, and extended interactions with, an inquiry experience encourages interconnection and a deeper sense of knowing.

How, then, does a teacher manage inquiries that extend for longer periods of time? Teachers can set aside time for students to explore their individual inquiries while devoting other time to whole-class inquiries that meet the broader demands of the mandated curriculum.

For the individual inquirer, there are checkpoints at which the individual updates the class by sharing his or her ongoing findings. These checkpoints support teachers in managing inquiry projects taking different lengths of time within the class while meeting the ongoing pressures placed on schools.

Misconception 4: In an inquiry classroom where learners are responsible for gathering resources and information, the teacher does not need to teach

Denise Allen prepares for the day. She updates her inquiry rotation chart, in which groups of students rotate in 30-minute intervals, meeting with the teacher, reading about their inquiries, writing in their inquiry journals, and experimenting with their inquiries. She reviews each student's daily reflections from the previous day, keeping abreast of what they accomplished and what they plan to do next.

In both the Outside-Curriculum-Maker and Teacher-as-Curriculum-Maker curricular perspectives, to *teach* means to transmit knowledge from the teacher or textbook to the student. The teacher appears active in the classroom because he or she spends most of the class time disseminating knowledge. However, teaching in an inquiry classroom requires a broader definition of education. The inquiry classroom is informed by theories in semiotics (Peirce, 1960; Eco, 1976), which helps us understand that knowledge is not transferred from one person (or text) to another. Rather, meaning is constructed as it is filtered through past experiences or negotiated among individuals based on their experiences and the pragmatics of a given situation (Rosenblatt, 1978; Harste & Short, with Burke, 1988). Thus, the in-

quiry teacher works to establish and organize a climate for inquiry so that students develop the tools to explore their curiosities and become more thoughtful, reflective, and inquisitive individuals.

To facilitate this process, inquiry teachers need to assume many complicated roles. We offer six roles that inquiry teachers often assume in their classrooms:

1. *Inquirer.* Teachers inquire about questions of personal and professional interests. They can be involved in their own personal inquiries, as were Carolyn, Kris, and Mark, described earlier, or they can be inquirers of their classroom curriculum by posing such questions as: How can I get the children to find meaning in their inquiry studies as I

chine, he uses math manipulatives and several coins housed in the math area to construct his three-dimensional invention (Ching, 1996).

3. *Listener and Observer.* To guide the student learner and suggest areas of study, resources, or methods of inquiry, teachers listen and observe, becoming good "kidwatchers" (Goodman, 1982). Observation enables teachers to continually support their students' interests, draw from their strengths, push their thinking, and suggest new avenues for further inquiry.
4. *Question Poser.* Inquiry teachers continually pose genuine and thoughtful questions to help the students and teacher better understand a learning process, concept, or topic: How did you come up with

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find meaning in my own inquiries? How can I push the curriculum to be more learner-centered or learner-generated? What theories are my students constructing about learning through their inquiry studies?

2. *Supporter of a learning culture.* Teachers carefully consider their classroom's physical environment so that it supports a tone for inquiry that is rich in resources and organized to encourage students' various and spontaneous interests. *Abraham wants to transform his Hot Wheels car into a remote control car. He gathers wires, duct tape, masking tape, a metal nut, scissors, and batteries from the science and art areas and explores numerous ways to make his car move on its own (Pataray-Ching, 1998). Another time when he wants to build a money-thrower ma-*

that theory? Why did you think that happened? What else did you learn from that? What other perspectives can we take to explore this question? How can we dig deeper to gain a richer understanding?

5. *Organizer.* A teacher, as a more experienced inquirer, assists students in becoming responsible for their learning by establishing routines that support inquiry. Although these routines vary from classroom to classroom, they can include scheduling time blocks, organizing materials, establishing collaborative groups, and developing organizational tools for students' individual and ongoing inquiries.
6. *Co-learner.* In an inquiry classroom, students inevitably find interests in areas outside the teacher's area of expertise. In these cases,

the inquiry teacher assumes the role of co-learner always open to learning *from* and *with* students acknowledging that teachers do not hold all knowledge. When teachers have a genuine excitement for learning, students recognize that learning is a lifelong love.

Misconception 5: Inquiring through disciplinary perspectives and sign system perspectives is no different than planning integrated units of study

A class wants to learn about Hawaii. One sign system through which learners can choose to inquire is an artist's perspective. Through this perspective, they initiate a question: "How can I make my own Hawaiian lei using flowers? To pursue this question, students use flowers as a

tool to explore the sign system of art. That is, they begin by stringing together several flowers. Their initial making of leis leads their inquiries to special lei-making books in which they study various types of leis. They also interview florists who have expertise making leis and who know the cultural significance of the Hawaiian lei. As a result, the children experiment with different flowers and stitch combinations, creating strings of flowers that are appropriate to the Hawaiian culture.

In the same class, another group is interested in taking a disciplinary perspective on Hawaii, such as a geologist's perspective. They ask, "What kinds of volcanoes are there in Hawaii? From videos, the children learn of the destructive forces of molten lava. They confer with the

geologist guest speaker who teaches them about different types of volcanoes around the world, including Hawaii's volcanoes. The geologist brings several types of volcanic rock, which the children examine and compare with Hawaii's lava rocks.

Inquiring through disciplinary and sign system perspectives is different from planning integrated units of study (Harste, 1994; Eisner, 1994; Gardner, 1983). Eisner (1994) contends that we experience our world through our senses, which enable us to conceive meaning and to form new understandings. This form of meaning and understanding is more fully experienced when children inquire through disciplinary and sign system perspectives. In the example above, the students inquire as artist lei-makers, discovering the deeper

Supporting Students Internet Inquiries

While the Internet is a potentially valuable inquiry resource, many teachers worry about how to help their students safely and efficiently locate appropriate sites. The following annotated list includes sites and search engines that are designed to assist teachers' and children's strategic use of the Internet.

1. Conducting safe Web searches—Online advice

- Encarta Schoolhouse <www.encarta.msn.com/schoolhouse/safety.asp> provides 30 practical suggestions for Staying Safe On-Line. The site also includes links to the *Encarta Encyclopedia*, dictionary, atlas, and a homework help section.

2. Conducting efficient Web searches—Online advice

- MidLink Magazine <www.ncsu.edu/midlink/search.html> offers a Web Tutorial, guidelines for Selecting Search Tools, and Useful Skills for Web Treks. Students can learn practical skills that range from managing bookmarks and favorites to saving graphics to a folder or disk.

- EdNext Search Engine <www.ednext.com/edhwwork.asp> helps students conduct searches by offering advice on such topics as how to enter keywords.

3. Child-Friendly Search Engines—Getting Online

- ONEKEY (The kid safe search engine) <www.onekey.com> includes an extensive database of sites that have been rigorously reviewed by the ONEKEY staff.
- Kids Connect <<http://www.ala.org/ICONN/kidsconn.html>> is a site where library media specialists answer e-mail questions from K–12 students who are seeking Internet resources. Responses are guaranteed within two school days.
- Google <www.google.com> includes a feature called SafeSearch, a tool that checks for potentially objectionable keywords or phrases in site addresses.
- Yahoooligans <www.yahoooligans.com> is a popular and far-reaching Web site that is easy for children to utilize.

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cultural meanings that leis signify. In their study of volcanoes, the children inquire as geologists, examining rock sediment spewed out of volcanoes around the world.

In contrast, the teacher in a classroom using integrated units of study, which stem from the Teacher-as-Curriculum-Maker perspective, responds to the mandated curriculum by incorporating several subject areas into one extended lesson. For example, in a thematic unit on Hawaii, the teacher would find ways to incorporate other subject areas such as art, music, science, social studies, language arts, and math. When this occurs, disciplines and sign systems are often taught as activities and crafts, doing little to help children understand the perspectives these disciplines or sign systems bring to the learning event.

In short, when children inquire through disciplinary and sign system perspectives, their questions drive the curriculum. However, in integrated units of study, the predetermined infusion of content areas dictates the curriculum, preventing children's authentic questions from emerging.

Misconception 6: An inquiry curriculum is impossible to implement because teachers have so many other subjects to teach

After Denise updates the class inquiry rotation chart and reviews the students' daily reflections from the previous day, the students arrive. The first couple of hours of school are devoted to literature study during which the children inquire as readers and writers about books they've read. They share stories that they've written and sometimes act out their stories for the class. As the day continues, the students become inquiring mathematicians by posing and exploring mathematical concepts from a mathematician's per-

spective. About twice a week in the late afternoon, the students inquire through both the scientist and social scientist perspectives. On other afternoons, they attend "specials" for art and music.

The assumption that an inquiry curriculum is another program added onto the curriculum stems from the Outside-Curriculum-Maker perspective. An inquiry curriculum is not intended to be another "teaching idea" added onto the existing curriculum. It is a philosophical framework that guides instruction. Researchers argue that in order for children to become readers and writers, they need to inquire as readers

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and writers (Harste & Short, with Burke, 1988; Avery, 1993; Atwell, 1988; Calkins, 1994; Graves, 1983, 1994; Heard, 1989). Similarly, in order to become mathematicians, historians, scientists, artists, and musicians, students need to inquire from and through those perspectives. Rather than adding to the curriculum, an inquiry perspective is woven through the curriculum.

Misconception 7: It is worthless to implement an inquiry curriculum because it cannot be graded

Progressive educators have learned through research and practice that the best learning occurs in classrooms that cannot be described or defined by letter grades or percentage points (Harp, 1991; Graves & Sunstein, 1992; Farr & Tone, 1994). While these symbols are intended to

complement learning, they are also built on assumptions that there are correct and incorrect responses, that learning is outside of the assessment process, that lower grades encourage improvement, and that comparing children promotes learning. In contrast, inquiry classrooms redefine grading. Evaluation is essential, but its primary purpose is to support student reflection and growth so that learners are equally responsible and accountable for their learning (Ching, 1996). Instead of the teacher being the sole evaluator, learners become part of the evaluation process. The children reflect on their progress and evaluate their learning, sharing their reflections with their parents in the form of a progress letter. When children are responsible for evaluation, they have a greater personal investment in their own learning process and personal growth.

Misconception 8: Implementation of an inquiry curriculum does not guarantee that students will score better on standardized tests; therefore, the curriculum is useless

The Outside-Curriculum-Maker's perspective supports standardized testing and therefore clashes with an inquiry curriculum. Inquiry teachers do not believe in teaching to the test and thus struggle with ethical issues of helping their students attain acceptable scores on standardized tests while maintaining a learning environment that promotes critical and creative thinking and a lifelong love for learning. Some researchers help students approach standardized tests from an inquiry perspective (Calkins, Montgomery, & Santman, 1998), in which students are taught specific strategies that help them be more successful on standardized tests. We do not dismiss the serious pressures that standardized tests place on

teachers; however, despite demands from the Outside-Curriculum-Maker, inquiry teachers remain focused on advocating quality learning environments for children. Research indicates that students in whole language classrooms did as well as or better on standardized tests compared to students in skills-oriented and phonics-based classrooms (Weaver, 1998) and that students test scores increase in inquiry classrooms (Harste, Leland, & Schmidt, 1999). We urge teachers to remain steadfast in their convictions toward creating classroom communities that respect children as thinkers and learners, children's unique talents and ways of knowing, and the rich experiences available as resources in culturally diverse classrooms, a "pedagogy of hope" that is more just, harmonious, and humane for all children (Macedo & Bartolomé, 1999).

Misconception 9: Students should not inquire about the same topic throughout the school year because students will fail to learn the "common stock of knowledge" that society expects all educated persons to share

When Steven Spielberg was young, he used to cut school by faking a high fever so he could spend the day creating movies at home. On other days his mother would take him to the Arizona desert, where they would spend the entire day creating movies together (Powers, 1997).

Inquiry, when used to support children's ongoing questions, has tremendous potential for lifelong learning. Students learn the values of longevity, persistence, depth of exploration, and continual questioning, qualities that can be applied to learning any concept or topic, and qualities that prepare students for the 21st century.

The common stock of knowledge what Hirsch (1988) refers to as "cultural literacy" or what Rose (1989) defines as a "historically validated body of knowledge, an authoritative list of books and allusions, a canon (p. 233), which is recorded in textbooks, mandated in schools, and used to define achievement and excellence" has been understood as the foundational elements that define the United States as a nation. However, these elements often represent only one viewpoint and do not allow room for other perspectives to shape and construct a shared understanding or for children to pursue perspectives that they find intriguing.

Inquiry teachers do not exclude this common stock of knowledge from their classrooms, but they find ways to create space for children to question the collection of information included in textbooks, to question whom this national body of knowledge privileges, and to question whom it silences. They seek not to reduce learning to a common stock of facts but to help learners cultivate the critical thinking and learning processes that they will use for a lifetime. In addition, inquiry teachers encourage children's personal inquiries to flourish both in school and at home, rather than give parents the impression that children's inquiries can be nurtured only outside the school setting.

CONCLUSION: MERGING THEORY AND PRACTICE

Our purpose in this article is to strengthen the connection between inquiry-as-theory with inquiry-as-practice and to highlight what we see as key aspects of inquiry. There are several practices that result from theorizing inquiry. Teachers set the tone for inquiry by:

- being inquirers;

- possessing a theoretical understanding of inquiry in relation to curriculum and the learner;
- encouraging students to view their worlds as questions;
- organizing the curriculum to allow in-depth individual inquiries;
- observing students' inquiries, posing questions to stimulate further inquiry and reflection, learning with students through their inquiries;
- encouraging diversity of thought through multiple ways of knowing;
- organizing an environment in which students are equally accountable for their learning.

When teachers are theoretically rooted in inquiry theory and translate theory into practice, learners will:

- view their worlds as a question;
- generate questions locally situated within their sociocultural contexts;
- choose personally meaningful inquiries;
- regard learning as a lifelong endeavor.

When teachers position their inquiry curriculum within a Learner-as-Curriculum-Maker perspective, they make confident decisions within their classrooms that are rooted in inquiry theory. Further, when educators understand how an inquiry curriculum contrasts with the Outside-Curriculum-Maker and Teacher-as-Curriculum-Maker perspectives, they are able to respond to criticisms that arise when teachers implement progressive pedagogy. As teachers inquire about their curricula, they will co-create classrooms that inspire children's creativity and thinking to emerge, develop, and flourish.

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